

A. L. SMOCK.
GRAIN CAR DOOR.
APPLICATION FILED JUNE 3, 1909.

965,958.

Patented Aug. 2, 1910.

Fig. 1.

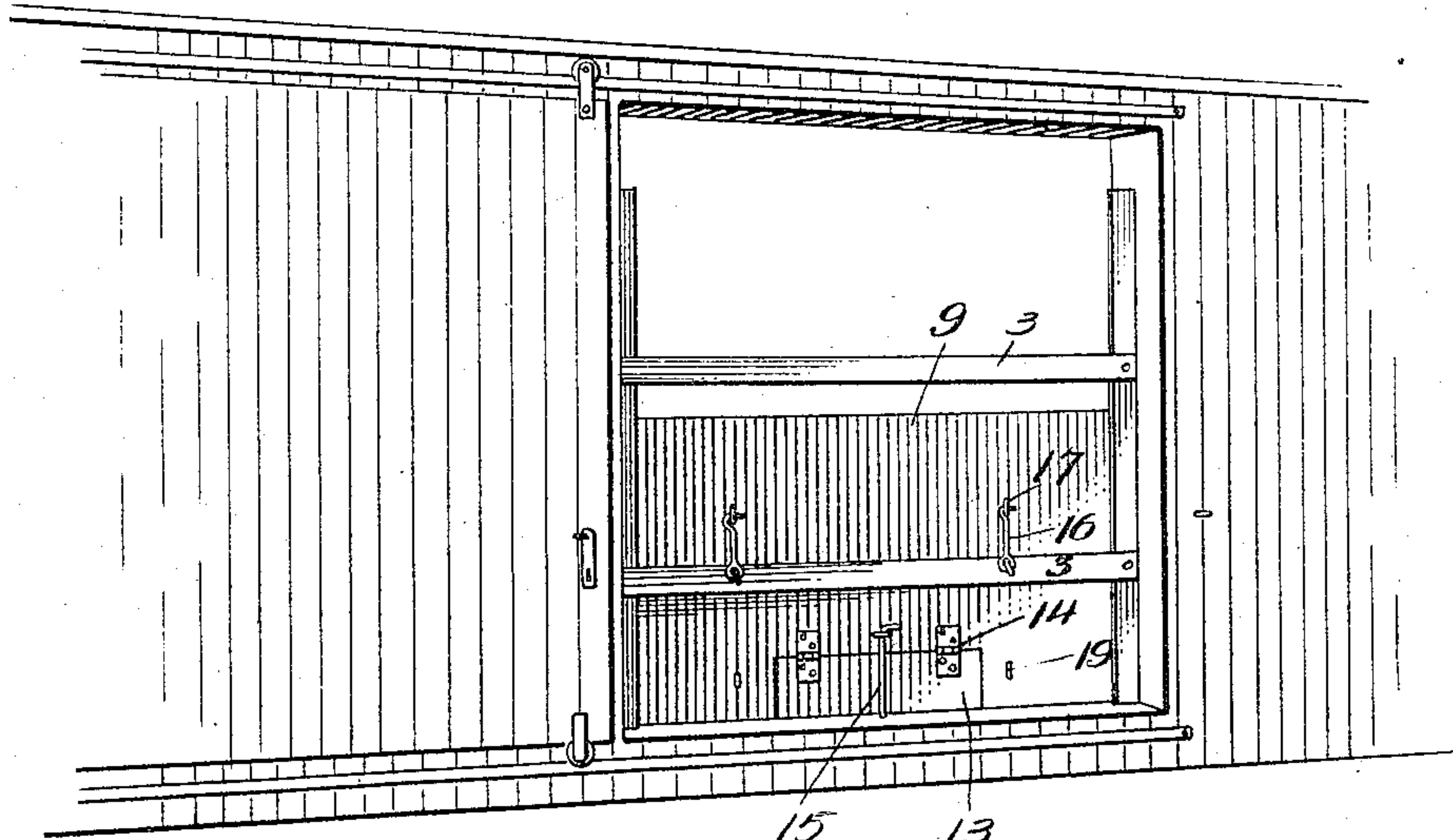


Fig. 2.

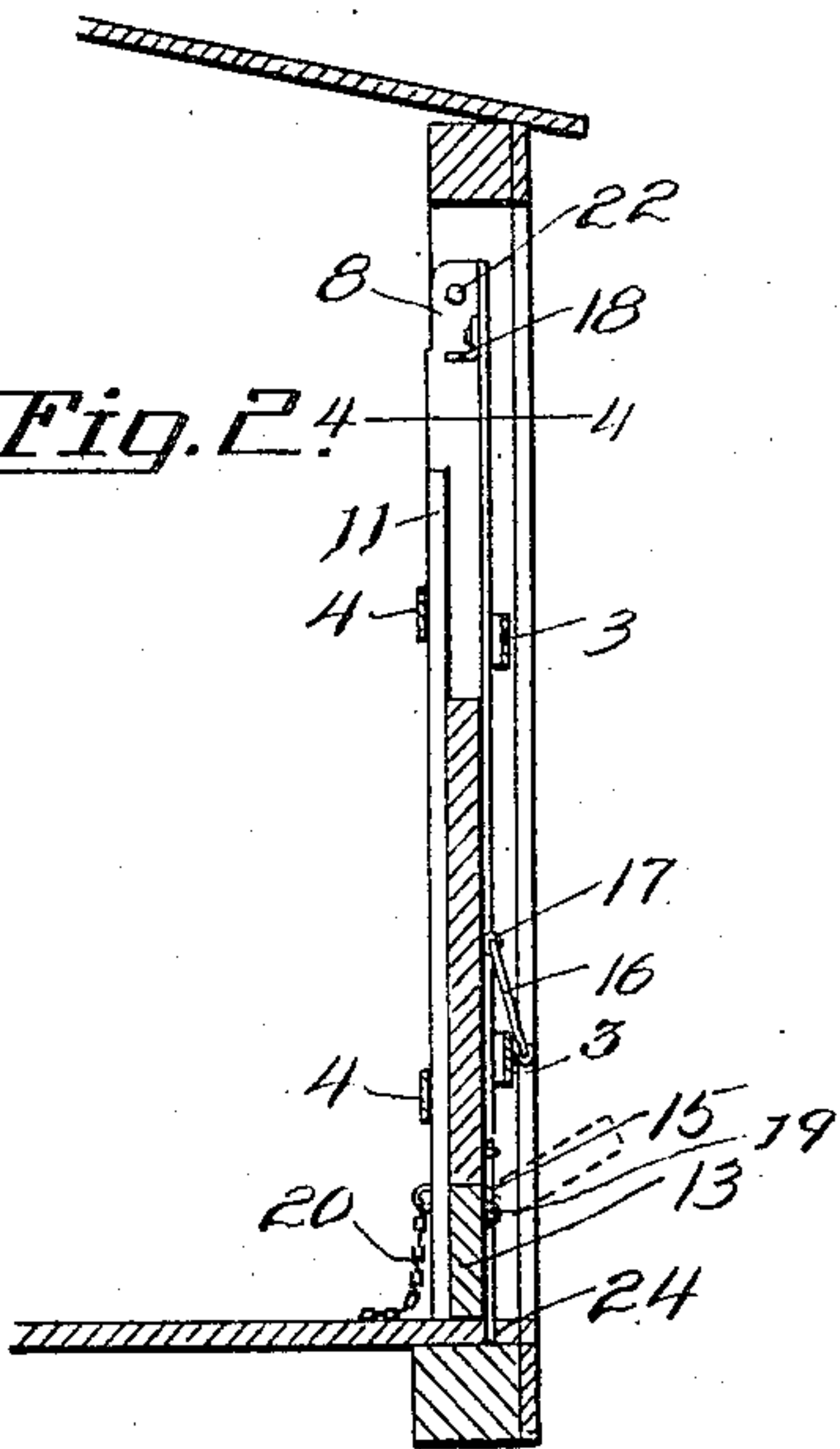


Fig. 3.

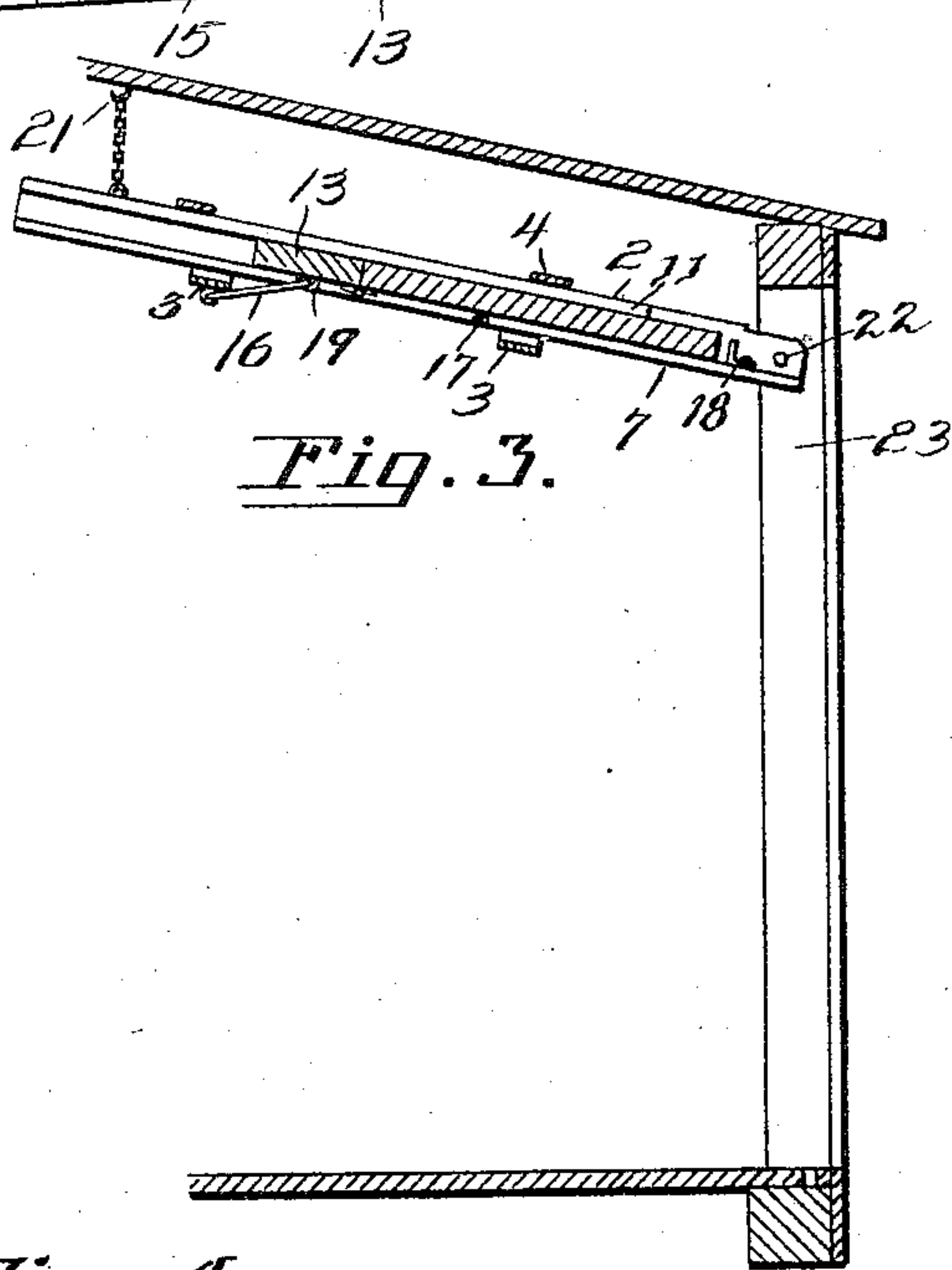
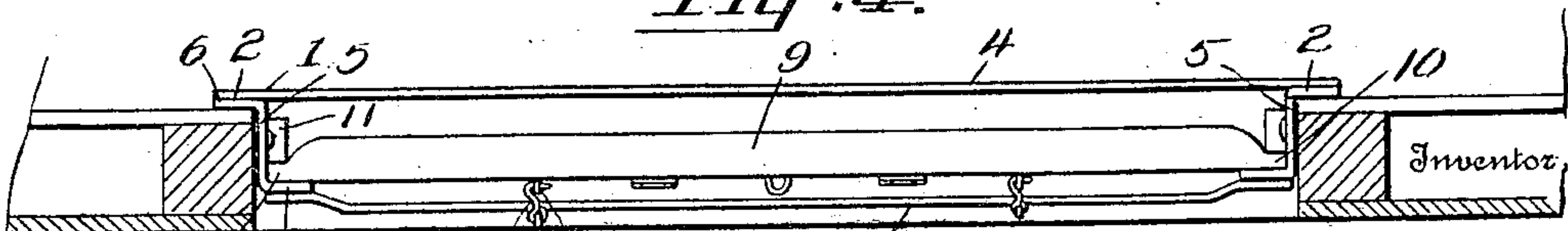


Fig. 4.



Witnesses
F. C. Gibson.
Ezra M. Hill

Inventor,
Abram L. Smock.
By *Gould & Gould*
Attorneys

UNITED STATES PATENT OFFICE.

ABRAM L. SMOCK, OF GUION, INDIANA.

GRAIN-CAR DOOR.

965,958.

Specification of Letters Patent.

Patented Aug. 2, 1910.

Application filed June 3, 1909. Serial No. 499,832.

To all whom it may concern:

Be it known that I, ABRAM L. SMOCK, a citizen of the United States, residing at Guion, in the county of Parke and State of Indiana, have invented certain new and useful Improvements in Grain-Car Doors, of which the following is a specification.

The invention relates to an improvement in doors for grain cars or the like, being more particularly directed to a grain car door constructed to permit the simple and convenient unloading of the car without waste of material.

The main object of the present invention is the provision of a grain car door constructed to include a framework in which the door proper is slidably mounted and which framework is pivotally connected to the frame standards of the door opening, whereby to permit a sliding movement of the door proper in the framework to permit escape of the material beneath the door, and a subsequent swinging of the door and framework into and out of the door opening.

A further object of the present invention is the provision of a grain car door which may be readily connected in the door opening of any appropriate type of car without change, thereby facilitating the conversion of any ordinary car into a car for the transportation of grain or similar material.

The invention will be described in the following specification, reference being had particularly to the accompanying drawings, in which:—

Figure 1 is a broken perspective illustrating the improved grain car door, the door being shown in closed position. Fig. 2 is a vertical section of the same. Fig. 3 is a similar view with the door structure shown in elevated position. Fig. 4 is an enlarged sectional view on the line 4—4 of Fig. 2.

Referring particularly to the accompanying drawings my improved grain door includes what I term a framework 1, preferably made up of sheet material and comprising side bars 2 and cross or brace bars 3 and 4, the latter constituting the rear brace bars and the former the front or forward brace bars.

The side bars of the framework are made up of angularly bent material, having a sectional contour of approximately Z-shape, that is each side bar includes a main or central web 5 from the rear edge of which ex-

tends a bearing flange 6 and from the forward edge a guide flange 7. The bearing and guide flanges extend in opposite directions from the central web and are each at approximately a right angle to the central web, as will be plain from Fig. 4 of the drawings. The guide flange is coextensive in length with the length of the central web, while the bearing plate is of somewhat less length than that of the central web, leaving the upper section of the central web free of the bearing plate, as at 8, whereby to permit a pivotal movement of the framework, as will presently appear. The side bars 2 are, as previously noted, connected by brace strips 3 and 4, the former being secured to the respective guide flanges of the side bars while the latter are connected to the bearing flanges of said bars, the connection of each of the brace strips being on the relatively outer surface of the flanges, as shown in Fig. 4. The brace strips are of a length to space the side bars such a distance that the central webs thereof will fit within the door opening, and the forward brace bars 3 are preferably offset or bent outwardly between the guide flanges in order to permit a sliding movement of the door and the connected parts.

Bearing between the central webs of the side bars is the door proper 9, constructed of any appropriate material, as wood or the like, and of a height sufficient to prevent the escape of the grain while not preventing proper ventilation. The door proper bears at its edges and on the front surface against the guide flanges 7 of the side bar, and its rear surface adjacent its side edges throughout the full length of the door is reduced in thickness to provide guide tongues 10. Guide strips 11 are secured to the central web of each side bar in rear of the door proper, said strips being of a length to provide for guiding the door throughout its movement and bearing at its forward edge against the guide tongue 11.

The door 9 is centrally formed in its lower edge with a recess or opening designed to be closed by an auxiliary door 13 having hinged connection at 14 with the door proper, a securing bolt 15 being arranged to hold the auxiliary door in closed position when desired. The lower front cross bar 3 is provided with fastening members, as hooks 16, which, when the door proper is in lowered or closed position, are designed to coöperate

with eyes 17 carried by the door proper, to secure said door against independent movement. The guide flanges 7 of the side bars are each provided adjacent their upper ends with stops 18 designed to limit the upward movement of the door proper, as will be obvious, and said door 9 is further provided with eyes 19 with which the hooks 16 are adapted to coöperate when the door is in fully elevated position, that is against the stops 18. The bearing plate 6 of each side bar is provided with a flexible connector 20 designed, when the door is turned upon its pivotal mounting, as will presently appear, to be engaged with hooks 21 carried by the car roof to support the framework in elevated position.

In securing the improved door in position the framework is pivotally connected at 22 to the uprights or side bars 23 of the door opening, and the parts of said framework are in such proportions and so arranged that when thus applied the central webs 5 of the side bars of the framework bear throughout their lengths against the uprights 23, while the bearing flange 6 of each side bar will, when the framework is in lowered position, bear squarely against the inner surface of the car siding in rear of said uprights. The side bars are of less transverse dimension than the similar dimension of the uprights 23, so that the forward plane of the framework is inwardly beyond or rearward from the plane of the outer surface of the car siding, thereby avoiding obstruction beyond the door opening. The sill of the opening may if desired be formed with a recess or socket 24 to receive the lower end of the bolt 15 when the door is in closed position, thus locking the auxiliary door and also serving to prevent accidental movement of the structure as an entirety.

In use with the door in closed position, when it is desired to unload the car, the auxiliary door 13 is released so that the pressure of the grain from within will open the door to discharge sufficient of the grain to relieve the main pressure against the door proper. The latter is then elevated and held in elevated position by engagement of the hooks 16 with the eyes 19, and the grain unloaded until the doorway is entirely clear. The framework is then swung on its pivots 22 and secured in elevated position, as previously described, providing access to the interior of the car for unloading.

The salient feature of the present invention resides in the use of a peculiarly formed framework, and particularly in the side bars thereof. In the construction described

the side bars are formed to provide the central webs to bear against the standards of the door opening and thereby insure a proper fitting of the door within said opening, guide flanges integral with the central webs to form guide members for the door proper, and bearing flanges integral with the central webs to bear against the inner surface of the standards, prevent a forward swinging of the door through the opening, and seal the juncture between the frame structure and the standards.

The construction provides a simple form of door and framework therefor which may be conveniently mounted in the door opening through the use of two pivot members only, and which when in position provides for a sliding movement of the door proper or a swinging movement of the entire structure relative to the door opening.

While designed particularly for use with grain cars it is obvious that the door described is as well adapted for use with other structures, and such uses are contemplated as within the spirit of the present invention.

Having thus described the invention what is claimed as new, is:—

1. A grain car door including a frame and a door proper slidably mounted therein, said frame comprising side bars constructed to provide a central plate, a bearing plate and a guide plate, the guide and bearing plates projecting at right angles from and in opposite directions from the respective forward and rear edges of the central plate, the guide plates serving to guide the door in the sliding movement thereof, and the bearing plates serving to seal the juncture between the central plates of the side bars and the adjacent faces of the door jambs when the frame is in lowered position, whereby to prevent the entrance of grain or other material between the central plates and the door jambs.

2. A grain car door including a frame pivotally mounted in the door opening, said frame comprising side bars including central plates, bearing plates, and guide plates, guide strips secured to the central plates in spaced parallel relation to the guide plates, and a door slidably mounted in the frame, the side edges of the door being reduced in thickness to provide guide tongues arranged for movement between the guide strips and guide plates of the side bars.

In testimony whereof, I affix my signature in presence of two witnesses.

ABRAM L. SMOCK.

Witnesses:

FRANK M. BRYANT,
O. E. MADDOX.